IS MCI (MILD COGNITIVE IMPAIRMENT) A USEFUL DIAGNOSTIC CONCEPT?

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The concept of MCI emerges from the observation that persons may undergo intellectual or mnestic deterioration, insidiously or acutely, to an extent that minor difficulties occur in complex cognitive functions, correlates of these deficits are found in standardized neuropsychological tests, but routine activities of daily living remain unimpaired. MCI may develop due to an underlying disease process, such as Alzheimer's disease, Parkinson's disease, frontotemporal lobar atrophy, M. Huntington, small vessel disease, and therefore progress to dementia. MCI may also persist without progression or be remit, i.e. in metabolic disorders (diabetes, hypo- or hyperthyroidism, electrolyte imbalance), arterial hypertension, heart failure, epilepsy, after anesthesia, craniocerebral trauma, brain tumor, substance abuse, and sleep apnea. MCI may also result from or go in line with psychiatric diagnoses, such as depression, or may persist without progression to dementia. Mnestic MCI may indicate early Alzheimer's disease. Nevertheless, MCI is inspecific in terms of etiology and prognosis.

Why is the concept useful?

1. It may be difficult to differentiate MCI from normal age-related decline of cognitive functions, cognitive deprivation or difficulties related to sensory and motor deficits, low educational level, psychiatric diagnoses or early dementia. Underlying causes may remain uncertain. Nevertheless, MCI indicates a certain or potential pathological condition and should thus be considered for detailed diagnosis, as other medical fields examine potentially pathological symptoms and signs.
2. Patients and their proxies often suffer from the cognitive deficits and therefore want to see a doctor. MCI provides explanations, guidelines and perspectives.We know the shortcomings of the MCI concept, and however, alternative concepts are practically missing.
3. Detailed diagnosis (routine blood laboratory, HIV, syphilis, neuroimaging, neuropsychological testing, psychiatric scales and inventories, functional imaging, EEG, CSF etc.) including subtyping (single versus multiple domain, nonamnestic versus amnestic MCI) may clarifiy underlying cause(s) for prognostic purposes (probability of conversion to dementia, type of dementia)
4. MCI may remit under treatment, but also spontaneously, e.g. in metabolic disorders, alcoholic and vascular cognitive impairment, sleep apnea, insomnia and parasomnias etc. Without diagnosis of MCI and its underlying causes there is no specific therapy.
5. MCI may indicate the early phase of a dementing illness. Most therapeutic studies in MCI (choline esterase inhibitors, vitamine supplements, cognitive interventions) have not been successful. In future times, however, one may expect disease modification and successful symptomatic treatment from early phases onwards.
6. Research on MCI is very active, as shown by steadily increasing numbers of publications, suggesting that the concept of MCI is widely accepted in science and medical professions.

Literature: Petersen RC et al. Arch Neurol 2009;66:1447; Petersen RC et al. Arch Neurol 2001;58:1985; Fischer P et al. Neurology 2007;68:288; Busse A et al. Neurology 2006;67:2176; Manly JJ. et al. Arch Neurol 2005;62:1739; Dubois B et al. Lancet Neurol 2007;6:734; Petersen RC et al. NEJM 2005;352:2379; Viswanathan A et al. Neurology 2009;72:368